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### Patent Law—Patentability Post-Bilski: No Need to Throw the Baby Out With the Bath Water When Determining Subject Matter Eligibility under 35 U.S.C. § 101

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PATENT LAW – PATENTABILITY POST-*BILSKI*: NO NEED TO THROW THE  
BABY OUT WITH THE BATH WATER WHEN DETERMINING SUBJECT MATTER  
ELIGIBILITY UNDER 35 U.S.C. § 101

I. INTRODUCTION

Imagine betting everything you own on black ten. Now imagine the overwhelming feeling of disbelief and despair you face when the roulette wheel lands on red thirty, and your entire life savings vanishes with a single sweep of the croupier's rake. In *Bilski v. Kappos*,<sup>1</sup> the Court had the potential to cause the same kind of emotional distress and financial hardship for innovators. Fortunately, the Supreme Court of the United States, delivering its opinion on the final day of the 2009-2010 session, preserved thousands of patents worldwide. Unfortunately, however, the Court's ruling undermined twenty years of patentability precedent, leaving inventors and patent professionals without clear direction.

Title 35, § 101 of the United States Code provides that patents are available to “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.”<sup>2</sup> Over the years, the United States Patent and Trademark Office (USPTO, the “patent office,” or the “Board”) and the federal courts have applied different tests for determining patent eligibility, but common language leads to what is known as the machine-or-transformation test.<sup>3</sup> Although the Court of Appeals for the Federal Circuit ruled in *In re Bilski* that this test is *the* test for determining patent eligibility under § 101,<sup>4</sup> the Supreme Court concluded on appeal that the machine-or-transformation test, while a useful and important clue, “is not the *sole* test for deciding whether an invention is . . . patent-eligible” subject matter.<sup>5</sup>

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1. 130 S. Ct. 3218 (2010).

2. 35 U.S.C. § 101 (2006).

3. See *Diamond v. Diehr*, 450 U.S. 175, 184 (1981) (quoting *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972) (“Transformation and reduction of an article ‘to a different state or thing’ is the clue to the patentability of a process claim that does not include particular machines.”); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978) (citing *Cochrane v. Deener*, 94 U.S. 780, 788 (1876) (“An argument can be made . . . that this Court has only recognized a process as within the statutory definition when it either was tied to a particular apparatus or operated to change materials to a ‘different state or thing.’”); *Cochrane v. Deener*, 94 U.S. 780, 788 (1876) (“A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing.”)).

4. *In re Bilski*, 545 F.3d 943, 956 (Fed. Cir. 2008).

5. *Bilski*, 130 S. Ct. at 3227 (emphasis added).

Because the Court did not provide guidance with respect to any of the other tests that have previously been used to determine whether processes are patentable, the USPTO has scrambled to develop new guidelines for determining patentability. The Supreme Court has consistently held that laws of nature, physical phenomena, and abstract ideas are not patentable;<sup>6</sup> however, other subject matters are not as clearly defined. Although practitioners will continue writing patent claims that meet the machine-or-transformation test, this test alone is insufficient because it cannot easily be applied to software and process<sup>7</sup> inventions.

By employing the previously used tests along with the machine-or-transformation test and the interim *Bilski* guidelines,<sup>8</sup> the USPTO can create practical guidelines to answer the question of patentability regarding inventions that fall between patentable machine-or-transformation subject matter and an unpatentable abstract idea. These standards will provide the flexibility desired by the Supreme Court<sup>9</sup> while continuing to allow patent laws to serve the intended purpose of promoting innovation.<sup>10</sup>

This note will provide an overview of the Patent Act,<sup>11</sup> a description of the various tests for determining patent eligibility that led to the use of the machine-or-transformation test,<sup>12</sup> a discussion of the *Bilski* decision and the problems it has created,<sup>13</sup> as well as suggestions for creating a working test practitioners can use when drafting patent claims.<sup>14</sup>

## II. BACKGROUND

Granted through the U.S. Constitution, the power to issue and regulate patents lies with Congress.<sup>15</sup> Although initially fearful of monopolies like

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6. See, e.g., *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980).

7. "The term 'process' means process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material." 35 U.S.C. § 100(b) (2006).

8. *Interim Guidance for Determining Subject Matter Eligibility for Process Claims in View of Bilski v. Kappos*, U. S. PAT. & TRADEMARK OFF. (Mar. 7, 2011, 12:50 PM), [http://www.uspto.gov/patents/announce/bilski\\_guidance.jsp](http://www.uspto.gov/patents/announce/bilski_guidance.jsp).

9. See *infra* Part III.

10. PAT. & TRADEMARK OFF., U.S. DEP'T OF COM., THE STORY OF THE U.S. PATENT AND TRADEMARK OFFICE iv. (1988). "The patent system is the best, most workable method yet devised for protecting inventions, fostering industrial and technical progress, and ultimately giving to the world the benefits of the individual inventor's genius." *Id.*

11. See *infra* Parts II.A and II.B.

12. See *infra* Part II.C.

13. See *infra* Part III.

14. See *infra* Part III.

15. U.S. CONST. art. I, § 8, cl. 8. "The Congress shall have Power . . . [t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;" *Id.*

those under the old English system, the constitutional delegates understood the importance of patents and allowed Congress to enact the first patent law.<sup>16</sup> It was under this power that Congress, with additional encouragement from President George Washington, established a committee that presented and passed the first patent bill.<sup>17</sup> From this bill,<sup>18</sup> the modern patent system gradually evolved.<sup>19</sup>

#### A. Major Changes to Patent Law

Under the Patent Act of 1790, the Secretary of State, the Secretary of War, and the Attorney General were responsible for granting patents.<sup>20</sup> The system was designed to be an examination system, which required the patent office to review each application.<sup>21</sup> Under this Act, fifty-five patents were granted.<sup>22</sup>

In 1793, patent law underwent a substantial change with the removal of the subject-matter condition that previously required inventions to be “sufficiently useful and important.”<sup>23</sup> Additionally, the patent system moved to a registration-based system due to the difficulties the patent office faced in splitting time between its regular duties and the duties of examining and administering patents.<sup>24</sup> Under the registration system, patent applications were no longer examined; instead, patents were granted to all that “applie[d], submit[ted] the proper drawings, and pa[id] the necessary fee.”<sup>25</sup> This process remained in effect for the next forty-three years.<sup>26</sup>

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16. THE STORY OF THE U.S. PATENT AND TRADEMARK OFFICE, *supra* note 10, at v. The first patent law was the Patent Act of 1790. *Id.* at 1.

17. *Id.* “On March 4, 1789, government under the new Constitution began operations, and on January 8, 1790, President Washington addressed the second session of the First Congress meeting in New York City, urging the representatives to give ‘effectual encouragement . . . to the exertion of skill and genius at home.’” *Id.*

18. *Id.* at 1. The passage of this bill became known as the Patent Act of 1790. *Id.*

19. *Id.* at 1–2.

20. *Id.* at 1.

21. *Id.* at 1–2.

22. THE STORY OF THE U.S. PATENT AND TRADEMARK OFFICE, *supra* note 10, at 2. The first patent was granted to Samuel Hopkins on July 31, 1790, “for an improvement in ‘the making of Pot ash and Pearl ash by a new Apparatus and Process,’” and George Washington, then President of the United States, Edmund Randolph, then Attorney General, and Thomas Jefferson, then Secretary of State, signed it. “The original document is still in existence . . .” *Id.*

23. *Id.*

24. *Id.*

25. *Id.*

26. *Id.* at 2–6.

The Patent Act of 1836 changed patent law again, resulting in the reestablishment of the “American” system of granting patents.<sup>27</sup> This Act brought back the examination system, requiring all applications to be examined for their novelty and usefulness.<sup>28</sup> With the exception of the 1790 Act, which created the patent system, this was the most important patent law enacted by the United States as it formed the basis for the patent laws in effect today.<sup>29</sup>

The last major revision to the United States patent laws came with the Patent Act of 1952 when Title 35 of the United States Code was enacted.<sup>30</sup> The basis of Title 35 is simple—any person who has invented “any new and useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof, may obtain a patent.”<sup>31</sup> In order to obtain a patent, one must simply file an application, accompanied by the proper papers describing the invention, with the Commissioner of Patents and Trademarks and pay the fee.<sup>32</sup> “The [USPTO] then searches prior patents and publications to determine whether the application presents something patentable,” ensuring it is new and useful.<sup>33</sup> Although these requirements initially appear straightforward, their interpretation has been the subject of much debate.<sup>34</sup> Nonetheless, the number of patents has continued to rise,<sup>35</sup> from three patents issued in 1793<sup>36</sup> to 244,341 issued in 2010.<sup>37</sup>

#### B. Title 35 of the United States Code

The statute currently outlining subject-matter patentability is 35 U.S.C. § 101, which provides that “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”<sup>38</sup> Although there are other pat-

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27. *Id.* at 6.

28. THE STORY OF THE U.S. PATENT AND TRADEMARK OFFICE, *supra* note 10, at 6.

29. *See id.*

30. 35 U.S.C. §§ 1–376 (2006).

31. *Id.* § 101.

32. THE STORY OF THE U.S. PATENT AND TRADEMARK OFFICE, *supra* note 10, at iii.

33. *Id.*

34. *See infra* Part II.C.

35. THE STORY OF THE U.S. PATENT AND TRADEMARK OFFICE, *supra* note 10, at 43–46.

36. *Id.* at 43.

37. U.S. Patents Statistic Chart Calendar Years from 1963-2011, U. S. PAT. & TRADEMARK OFF. (Jan. 18, 2012, 2:38 PM), [http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us\\_stat.htm](http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm).

38. 35 U.S.C. § 101 (2006). Note how little has changed since the Patent Act of 1790, which defined subject matter as “any useful art, manufacture, engine, machine, or device, or any improvement therein not before known or used.” *See* Act of April 10, 1790, ch. 7, § 1, 1 Stat. 109 (repealed 1793).

entability requirements, outlined primarily in §§ 102,<sup>39</sup> 103,<sup>40</sup> and 112,<sup>41</sup> this note will focus on § 101 as it is the threshold for determining if the subject matter is eligible for patenting. Section 101 addresses the two-prong test that must be satisfied in order for an invention to be patentable. The first prong provides that an invention must be new and useful.<sup>42</sup> The second prong requires that an invention fall within one of the following four categories: “a process; a machine (also known as an apparatus); a manufacture (also known as an article); [or] a composition of matter.”<sup>43</sup> The second prong has been the subject of much debate and litigation.<sup>44</sup>

### C. The Various Tests Used to Determine Patent Eligibility Leading to the Machine-or-Transformation Test

As previously mentioned, “laws of nature, physical phenomena, and abstract ideas” cannot be patented.<sup>45</sup> In *Gottschalk v. Benson*,<sup>46</sup> the Supreme Court explained that “[p]henomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”<sup>47</sup> In *Diamond v. Diehr*,<sup>48</sup> however, the Court held that “anything under the sun that is made by man” should be patentable,<sup>49</sup> and the “transformation and reduction of an article ‘to a different state or thing’ is the clue to [its] patentability.”<sup>50</sup> This language formed the machine-or-transformation test, which has been used for several years to determine initial patentability under § 101. What falls between a patentable machine-or-transformation and an unpatentable

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39. 35 U.S.C. § 102.

40. *Id.* § 103.

41. *Id.* § 112.

42. John Hammond & Robert Gunderman, *The Limited Monopoly: Patent Law 101—What Is Patentable?*, THE ROCHESTER ENG’R, June 2007, at 6, 6.

43. *Id.*

44. *Id.* (“Historically, this latter requirement has been where much of the controversy exists.”).

45. *E.g.*, *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980).

46. 409 U.S. 63 (1972).

47. *Id.* at 67. The Court does not say any invention including, or built upon, phenomena, laws of nature, or an abstract idea could never be patented. Instead, the Court quotes itself in *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948), where it said that “[h]e who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, it must come from the application of the law of nature to a new and useful end.” *Id.* Additionally, the Court explained that “while a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.” *Id.* (quoting *Mackay Co. v. Radio Corp.*, 306 U.S. 86, 94 (1939)).

48. 450 U.S. 175 (1981).

49. *Id.* at 182.

50. *Id.* at 184 (quoting *Gottschalk*, 409 U.S. at 70).

abstract idea gives rise to much confusion within the area of patent law, making any patentability determination controversial. This gray area includes software, digital programs, and business processes.

### 1. *Rules of the Abrams Test*

In *In re Abrams*,<sup>51</sup> the appellant sought review of the USPTO's rejection of the claims presented in his application for a petroleum prospecting method.<sup>52</sup> The Board rejected the application on the basis "that the steps in the claims which constitute the heart of the invention [were] purely mental in character," and they failed to describe a process involving eligible subject matter.<sup>53</sup> On appeal, the court was asked to apply the following three "rules of law" to cases that contain so-called mental steps<sup>54</sup>:

1. If all the steps of a method claim are purely mental in character, the subject matter thereof is not patentable within the meaning of the patent statutes.

2. If a method claim embodies both positive and physical steps as well as so-called mental steps, yet the alleged novelty or advance over the art resides in one or more of the so-called mental steps, then the claim is considered unpatentable for the same reason that it would be if all the steps were purely mental in character.

3. If a method claim embodies both positive and physical steps as well as so-called mental steps, yet the novelty or advance over the art resides in one or more of the positive and physical steps and the so-called mental step or steps are incidental parts of the process which are essential to de-

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51. 188 F.2d 165 (C.C.P.A. 1951).

52. *Id.* at 165. The primary examiner determined that while the invention involved a new and useful method of prospecting for petroleum deposits, steps involved were mainly mental in nature and therefore non-statutory. *Id.* at 167.

This mental process is indicated by such terms in the claims as "calculating" applied for instance to mathematically making certain computations from figures taken down from pressure observation, "comparing" applied to mere mental comparison of figures on a sheet[,] "converting" as related to mathematically calculating the flow data or pressure rise with respect to a standard reference pressure, "determining" applied, for instance, to the reading of the pressure rise figures[, and] "correcting" involving mere mathematical calculations.

*Id.* (quoting "the statement of the examiner following the appeal to the [B]oard").

53. These claims were rejected pursuant to Section 4886 R.S.. *Id.* at 165. Section 4886 R.S. was included in § 31 of the former Title 35, which was modified by the Patent Act of 1952 one year after this case was decided. 35 U.S.C. § 101.

54. *In re Abrams*, 188 F.2d at 166.

fine, qualify or limit its scope, then the claim is patentable and not subject to the objections contained in 1 and 2 above.<sup>55</sup>

The appellant suggested these rules to the examiner, who mentioned them in his reply brief to the Board.<sup>56</sup> “[N]either the examiner nor the [B]oard,” however, “expressed either approval o[r] disapproval” of these rules.<sup>57</sup> Furthermore, the court also affirmed the patent rejection without adopting or rejecting these rules.<sup>58</sup>

Although the Board did not expressly adopt the “Rules of Abrams,” it appears these rules have been used as a basis for its rejection of claims presented by subsequent patent applications.<sup>59</sup> As the court noted in *In re Prater*,<sup>60</sup> there has been much confusion regarding the precedential value of *Abrams*, which results from the erroneous belief that the decision was a judicial adoption of the rules presented by Abrams’ attorney.<sup>61</sup>

## 2. The Technological Arts Test

By 1970, the United States Court of Customs and Patent Appeals<sup>62</sup> (C.C.P.A.) had expressly rejected the “Rules of Abrams” and had employed the “technological arts” test instead, stating “[a]ll that is necessary . . . to make a sequence of operational steps a statutory ‘process’ within 35 U.S.C. § 101 is that it be in the technological arts so as to be in consonance with the

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55. *Id.* The appellant’s “brief state[d] that the proposed rules were formulated on behalf of [the] appellant from a review of many decisions, and it said: ‘Appellant strongly feels that this court should adopt the three rules promulgated . . . , or some modification thereof, in order that some rule of reason which is readily understandable to all can be applied to these mental step cases.’” *Id.*

56. *Id.* at 167.

57. *Id.*

58. *Id.*

59. See *In re Musgrave*, 431 F.2d 882, 888 (C.C.P.A. 1970) (“Since the three so-called ‘Rules of Abrams’ appear to have been the legal basis of both decisions below . . . we deem it appropriate to state at the outset our position as to those so-called rules . . . .”); *In re Prater*, 415 F.2d 1378, 1381–82 (C.C.P.A. 1968) (where the examiner cited portions of *In re Abrams* as support for his position that certain “claims to a mental process [were] unpatentable,” and the Board affirmed).

60. 415 F.2d 1378 (C.C.P.A. 1968).

61. *Id.* at 1386.

62. This court was established in 1909, but it did not acquire jurisdiction to hear patent appeal cases until 1929. *History of the Federal Judiciary*, FED. JUD. CENTER, [http://www.fjc.gov/history/home.nsf/page/courts\\_special\\_cpa.html](http://www.fjc.gov/history/home.nsf/page/courts_special_cpa.html) (last visited Jan.30, 2012). In 1982, the Federal Courts Improvement Act abolished the C.C.P.A., transferring its jurisdiction, docket, and judges to the United States Court of Appeals for the Federal Circuit. See *id.*; *Landmark Judicial Legislation*, FED. JUD. CENTER, [http://www.fjc.gov/history/home.nsf/page/landmark\\_22.html](http://www.fjc.gov/history/home.nsf/page/landmark_22.html) (last visited Jan. 30, 2012).



Constitutional purpose to promote the progress of 'useful arts.'"<sup>63</sup> The court affirmed the technological arts test in *In re Foster*<sup>64</sup> where it stated that "[u]nder this analysis it is not important whether the claims contain mental steps or not if the process is within the technological arts."<sup>65</sup>

The court again applied the technological arts test in *In re Benson*<sup>66</sup> when it reversed the Board's rejection and held that the application claims were within the statutory subject matter allowed by § 101.<sup>67</sup> The Supreme Court later reversed this decision in *Gottschalk v. Benson*.<sup>68</sup> In *Gottschalk*, the Court held that the respondent's method for converting numerical information from binary-coded decimal (BCD) numbers into pure binary numbers for use in programming conventional general-purpose computers was merely a series of mathematical calculations or mental steps, which did not constitute a patentable process.<sup>69</sup> The Court held that "[t]ransformation and reduction of an article 'to a different state or thing' is the clue to the patentability of a process claim that does not include particular machines."<sup>70</sup> Because the claim was a series of mathematical calculations, the Court determined it was not limited to any particular art or technology, to any particular apparatus or machinery, or to any particular end use, but rather it was "so abstract and sweeping[,] . . . cover[ing] both known and unknown uses," that it did not constitute a patentable process.<sup>71</sup> Furthermore, since the BCD conversion could be performed on any existing computer, or even without a computer, to grant this process a patent would be equivalent to patenting the algorithm itself.<sup>72</sup> However, the Court expressly noted that it did not "hold that no process patent could ever qualify if it did not meet the requirements of [its] prior precedents."<sup>73</sup>

In *Parker v. Flook*,<sup>74</sup> the Court addressed process patentability where an algorithm is tied to a particular post-solution activity.<sup>75</sup> The examiner

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63. *In re Musgrave*, 431 F.2d at 893 (citing U.S. CONST. art. I, § 8). "It remains our view that we need not be encumbered in our reasoning by the 'Rules' of *Abrams* for the reason that they have never enjoyed the approval of this court." *Id.* at 889.

64. 438 F.2d 1011 (C.C.P.A. 1971).

65. *Id.* at 1015. "In the present case there can be no dispute that the process of removing distortion from seismograms is within the technological arts as was the closely related process of correcting seismic data in *Musgrave*. Therefore, we conclude that the method claims are directed to a statutory process." *Id.*

66. 441 F.2d 682 (C.C.P.A. 1971).

67. *Id.* at 688.

68. *Gottschalk v. Benson*, 409 U.S. 63, 73 (1972).

69. *Id.* at 65-66, 71-72.

70. *Id.* at 70.

71. *Id.* at 68, 71-72.

72. *Id.* at 67, 71-72.

73. *Id.* at 71.

74. 437 U.S. 584 (1978).

75. *Id.* at 585.

rejected the respondent's method for updating alarm limits during a catalytic conversion process on the grounds that a mathematical formula was the only difference between the claims and prior art, and the Board affirmed.<sup>76</sup> The examiner noted "that the claims did not describe a discovery that was eligible for patent protection," and "a patent on this method 'would in practical effect be a patent on the formula or mathematics itself.'"<sup>77</sup> The Court stated that "[t]he line between a patentable 'process' and an unpatentable 'principle' is not always clear. Both are 'conception[s] of the mind, seen only by [their] effects when being executed or performed.'"<sup>78</sup>

### 3. *The Freeman-Walter-Abele Test*

Another test for determining subject-matter eligibility, the Freeman-Walter-Abele test ("FWA test"), emerged through a series of C.C.P.A. decisions.<sup>79</sup> This test provided a two-step analysis for determining patentability under § 101.<sup>80</sup> Under the FWA test, the claim is first analyzed to determine whether any mathematical algorithms are directly or indirectly recited.<sup>81</sup> If a mathematical algorithm is included, the claim as a whole must be analyzed to determine whether "the claim [has] implement[ed] the algorithm in a specific manner to define structural relationships between the elements of the claim . . . or to limit or refine physical process steps."<sup>82</sup> If the algorithm has been used in such a way, the claim is patentable under § 101.<sup>83</sup> Eventually, this test was questioned, and although the court ruled it was not an improper analysis, it pointed out that the ultimate issue has always been whether the claim as a whole is drawn to statutory subject matter.<sup>84</sup>

### 4. *The Useful, Concrete, and Tangible Result Test*

In *State St. Bank & Trust Co. v. Signature Financial Group, Inc.*,<sup>85</sup> the United States Court of Appeals for the Federal Circuit further recognized and supported the distinction between an algorithm and a patentable tool that uses an algorithm.<sup>86</sup> The court held that mathematical subject matter

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76. *Id.* at 585, 587.

77. *Id.* at 587.

78. *Id.* at 589 (quoting *Tilghman v. Proctor*, 102 U.S. 707, 728 (1880)).

79. *See In re Abele*, 684 F.2d 902 (C.C.P.A. 1982); *In re Walter*, 618 F.2d 758 (C.C.P.A. 1980); *In re Freeman*, 573 F.2d 1237 (C.C.P.A. 1978).

80. *In re Abele*, 684 F.2d at 905.

81. *Id.*

82. *In re Walter*, 618 F.2d at 767.

83. *Id.*

84. *In re Alappat*, 33 F.3d 1526, 1539 (Fed. Cir. 1994).

85. 149 F.3d 1368 (Fed. Cir. 1998).

86. *Id.* at 1373.

alone represents nothing more than an abstract idea until reduced to some type of practical application.<sup>87</sup> This “useful, concrete and tangible result” test further supported the Supreme Court’s ruling that “anything under the sun that is made by man” should be patentable.<sup>88</sup>

### 5. *The Machine-or-Transformation Test*

In 2008, the United States Court of Appeals for the Federal Circuit’s opinion in *In re Bilski*<sup>89</sup> expressly rejected all of the previously mentioned tests regarding subject-matter eligibility for patents under § 101 in favor of the machine-or-transformation test.<sup>90</sup>

In *Bilski*, the applicants appealed a final decision from the Board rejecting all claims in their patent application directed towards a method for hedging against the risks of commodities trading.<sup>91</sup> The examiner originally rejected the claims on the basis that they did not meet the technological arts test; rather they only claimed an abstract idea.<sup>92</sup> On review, the Board held that case law does not support the technological arts test; therefore, the examiner’s reliance on it was in error.<sup>93</sup> Nevertheless, the Board affirmed the

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87. *Id.* at 1373–75.

88. *See id.* at 1373 (citing *Diamond v. Diehr*, 450 U.S. 175, 182 (1981); *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980)) (“The repetitive use of the expansive term ‘any’ in § 101 shows Congress’s intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in § 101. Indeed, the Supreme Court has acknowledged that Congress intended § 101 to extend to ‘anything under the sun that is made by man.’”).

89. 545 F.3d 943 (Fed. Cir. 2008).

90. *Id.* at 966.

91. *Id.* at 949. The principal claim at issue read:

A method for managing the consumption risk costs of a commodity sold by a commodity provider at a fixed price comprising the steps of:

(a) initiating a series of transactions between said commodity provider and consumers of said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumer;

(b) identifying market participants for said commodity having a counter-risk position to said consumers; and

(c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions.

*Id.*

92. *Id.* at 950. The examiner stated, “[r]egarding . . . claims 1–11, the invention is not implemented on a specific apparatus and merely manipulates [an] abstract idea and solves a purely mathematical problem without any limitation to a practical application, therefore, the invention is not directed to the technological arts.” *Id.*

93. *Id.* According to the Board, “the requirement of a specific apparatus was also erroneous because a claim that does not recite a specific apparatus may still be directed to patent-

claims' rejection, holding that the claims did not involve any transformation, which is necessary to make it patent-eligible subject matter.<sup>94</sup>

Finding its guidance in Supreme Court reasoning, the appellate court expressly rejected the Freeman-Walter-Abele test,<sup>95</sup> the technological arts test,<sup>96</sup> and the useful, concrete, and tangible result test.<sup>97</sup> The court held these tests proved "inadequate" and "insufficient" for their purposes.<sup>98</sup> Consequently, the court adopted the machine-or-transformation test as *the* applicable test for patent-eligible subject matter.<sup>99</sup>

### III. ARGUMENT

While the courts have used a variety of tests to answer the threshold question of subject-matter patentability, the Supreme Court has refused to acknowledge a rigid test. In *Tilghman v. Proctor*,<sup>100</sup> the Court stated that "[t]he patent law is not confined to new machines and new compositions of matter, but extends to any new and useful art or manufacture. A manufacturing process is clearly an art, within the meaning of the law."<sup>101</sup> In *Expanded Metal Co. v. Bradford*,<sup>102</sup> the Court explained that the Court "did not intend to limit process patents to those showing chemical action or similar elemental changes."<sup>103</sup> Furthermore, in *Gottschalk v. Benson*,<sup>104</sup> the Court clearly stated, "We do not hold that no process patent could ever qualify if it did not meet the requirements of our prior precedents."<sup>105</sup> Conversely, in *Parker v. Flook*,<sup>106</sup> the Court acknowledged that an argument could be made "that

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eligible subject matter 'if there is a transformation of physical subject matter from one state to another.'" *Id.*

94. *Id.*

95. *In re Bilski*, 545 F.3d at 959.

96. *Id.* at 960. The court explained that neither it nor the Supreme Court have formally adopted the technological arts test, and it chose not to do so here.

97. *Id.* at 959 ("[W]hile looking for 'a useful, concrete and tangible result' may in many instances provide useful indications of whether a claim is drawn to a fundamental principle or practical application of such a principle, that inquiry is insufficient to determine whether a claim is patent-eligible under § 101.").

98. *Id.* at 959–60.

99. *Id.* at 966 (emphasis added). The machine-or-transformation test requires an applicant to show their "claim satisfies § 101 . . . by showing that [the] claim is tied to a particular machine, or by showing that [the] claim transforms an article." *Id.* at 961. "[T]he use of a specific machine or transformation of an article must impose meaningful limits on the claim's scope" and cannot "merely be insignificant extra-solution activity." *Id.* at 961–62.

100. 102 U.S. 707 (1881).

101. *Id.* at 722.

102. 214 U.S. 366 (1909).

103. *Id.* at 384.

104. 409 U.S. 63 (1972).

105. *Id.* at 71.

106. 437 U.S. 584 (1978).

[the] Court has only recognized a process [as patentable] when it was either tied to a particular apparatus or operated to change materials to a 'different state or thing.'"<sup>107</sup> The Court admitted, however, "that a valid process patent may [be] issue[d] even if it does not meet [the] qualifications of . . . earlier precedent."<sup>108</sup>

The Court has further "cautioned that courts 'should not read into the patent laws limitations and conditions which the legislature has not expressed.'"<sup>109</sup> The United States Court of Appeals for the Federal Circuit agreed, stating that "it is improper to read limitations into § 101 on the subject matter that may be patented where the legislative history indicates that Congress clearly did not intend such limitations."<sup>110</sup> This is exactly what the Federal Circuit did in *In re Bilski*, however, when it rejected all other tests and adopted the machine-or-transformation test as *the* test for patent-eligible subject matter.<sup>111</sup>

Although the Supreme Court affirmed the Federal Circuit's decision in *In re Bilski*, it rejected the notion that the machine-or-transformation test is the sole test for determining patent eligibility under § 101.<sup>112</sup> The Court held "that the machine-or-transformation test is a useful and important clue . . . [however,] [t]he machine-or-transformation test is not the sole test."<sup>113</sup> By so ruling, the Court ensured the preservation of thousands of patents and billions of dollars worth of property.<sup>114</sup>

While ruling that the machine-or-transformation test was not the sole test for determining patentability, the Court failed to offer any solutions or suggestions regarding what else may be used to determine patent eligibility. Did the Court intend to bring back the "useful, concrete and tangible result" test from *State Street*? What about the Freeman-Walter-Abele and technological arts tests? Alternatively, is the USPTO free to create its own test?

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107. *Id.* at 588 n.9.

108. *Id.*

109. *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980) (quoting *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199 (1933)).

110. *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1373 (1998). "The Committee Reports accompanying the 1952 [Patent] Act inform us that Congress intended statutory subject matter to 'include anything under the sun that is made by man.'" *Id.* at 1373 n.3 (citing S. REP. NO. 82-1979 at 5 (1952); H.R. REP. NO. 82-1923, at 6 (1952)).

111. See *In re Bilski*, 545 F.3d 943, 966 (Fed. Cir. 2008).

112. *Bilski v. Kappos*, 130 S. Ct. 3218, 3227 (2010). It appears the court of appeals misinterpreted the Supreme Court's previous statement in *Gottschalk*, thinking that "[t]ransformation and reduction of an article 'to a different state or thing' is *the* clue to the patentability of a process claim that does not include particular machines" rather than *a* clue. *Id.* (quoting *Gottschalk v. Benson*, 409 U.S. 63, 70, (1972)) (emphasis added).

113. *Id.*

114. Software patents in particular would have been at risk had the Court found the machine-or-transformation test was the only test for patentability. As the Court notes, the machine-or-transformation tests fails to make it clear that software is patent-eligible. See *id.*

Perhaps the Court was reiterating its “I don’t know how to define it, but I’ll know it when I see it” doctrine.<sup>115</sup>

In the wake of the *Bilski* decision, the USPTO issued two sets of interim guidelines<sup>116</sup> in an attempt to address the issues left unresolved by the Court. With respect to subject-matter eligibility, the USPTO offered a two-step analysis:

Step 1: Is the claim directed to one of the four patent-eligible subject matter categories: process, machine, manufacture, or composition of matter?

....

Step 2: Does the claim wholly embrace a judicially recognized exception, which includes abstract ideas, mental processes or substantially all practical uses (pre-emption) of a law of nature or a natural phenomenon, or is it a particular practical application of a judicial exception?<sup>117</sup>

Although this two-step analysis seems simple on its face, it leaves patent examiners with too much discretion in determining patent eligibility as the guidelines do not refer to any past precedent. By ignoring past precedent, it is once again left up to the examiners to define terms such as “claim as a whole,” “practical application,” and “post-solution activity.”

In keeping with the flexibility desired by the Supreme Court with regard to patent eligibility, and the spirit that anything under the sun is patentable, the USPTO should employ all previously used tests to determine initial patent eligibility under § 101. It is not necessary to “throw the baby out with the bathwater” and discard precedent in search of *the* test, rather courts should continue to build upon it as *a* test. Because § 101 is merely a threshold inquiry,<sup>118</sup> claims must still meet other requirements for patentability, which will prevent erroneous applications from gaining patent protec-

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115. See *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Stewart, J., concurring). With regard to what constitutes obscenity, Justice Potter Stewart stated, “I shall not today attempt to further define the kinds of materials I understand to be embraced within that shorthand description; and perhaps I could never succeed in intelligibly doing so. But I know it when I see it . . . .” *Id.*

116. See Memorandum from Andrew H. Hirshfeld, Acting Deputy Commissioner for Patent Examination Policy, to the TC Directors (August 24, 2009), available at [http://www.uspto.gov/patents/law/comments/2009-08-25\\_interim\\_101\\_instructions.pdf](http://www.uspto.gov/patents/law/comments/2009-08-25_interim_101_instructions.pdf); Memorandum from Robert W. Bahr, Acting Associate Commissioner for Patent Examination Policy, to the Patent Examining Corps (July 27, 2010), available at [http://www.uspto.gov/patents/law/exam/bilski\\_guidance\\_27jul2010.pdf](http://www.uspto.gov/patents/law/exam/bilski_guidance_27jul2010.pdf).

117. Memorandum from Andrew H. Hirshfeld, *supra* note 116, at 1–2.

118. *Diamond v. Diehr*, 450 U.S. 175, 189 (1981). “Section 101, however, is a general statement of the type of subject matter that is eligible for patent protection ‘subject to the conditions and requirements of this title.’” *Id.*

tion while still allowing the patent laws to have the comprehensiveness intended by Congress.<sup>119</sup>

In *Bilski*, the Supreme Court identified three specific exceptions to the “broad patent eligibility principles” of § 101: laws of nature; physical phenomena; and abstract ideas.<sup>120</sup> The USPTO and the courts have spent many years trying to determine what *does not* fall under one of these exceptions. Because § 101 is only the initial question, it would be easier for patent examiners to determine what *does* fall under one of these exceptions; in other words, examiners should seek to determine what is *not* patentable rather than trying to determine what *is* patentable. For claims that do not fall under an unpatentable exception, the USPTO and the courts should be able to determine patent eligibility by following the steps depicted in Chart 1 below and the explanation that follows.

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119. *Bilski*, 130 S. Ct. at 3225. “In choosing such expansive terms . . . modified by the comprehensive ‘any,’ Congress plainly contemplated that the patent laws would be given wide scope.” *Id.* (quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 308 (1980)).

120. *Id.*

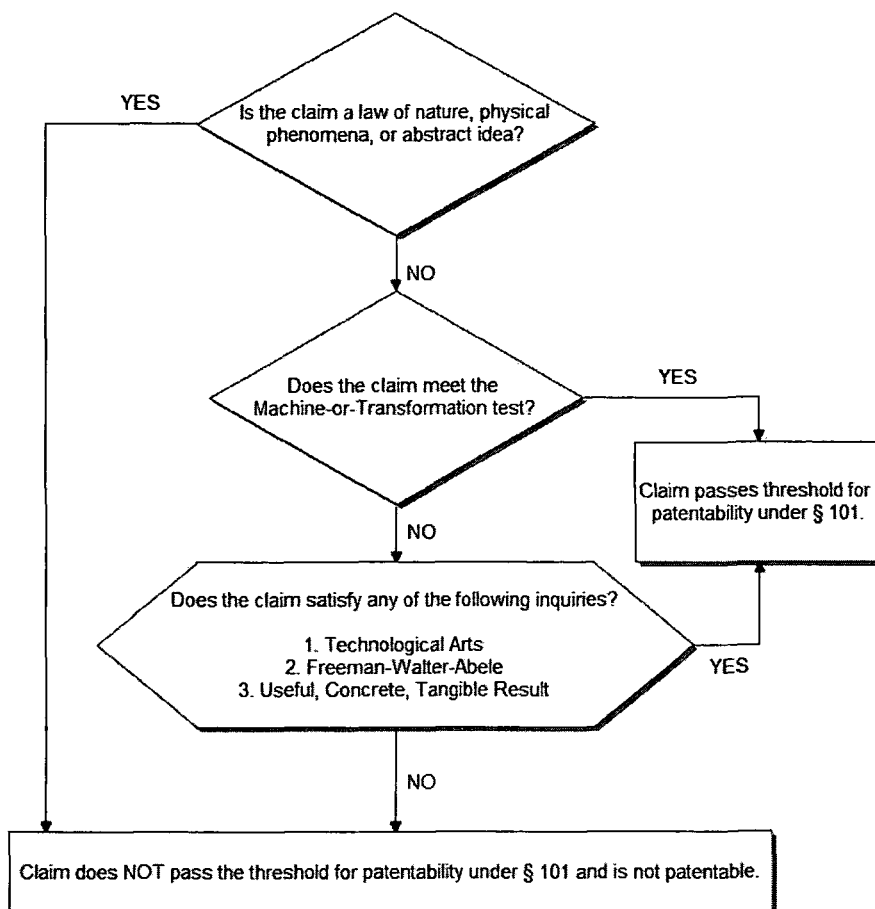


Chart 1: Proposed flowchart depicting process for determining whether a claim passes the threshold inquiry of subject-matter patent eligibility under § 101.

**A. Does the Claim Meet the Machine-or-Transformation Test?**

If a claim is tied to a particular machine or transforms an article, then it passes the threshold for patent eligibility. This requires the particular machine or transformation to impose meaningful limits, and it must not simply be a post-solution activity. If a claim is not tied to a particular machine and it does not transform article, then move to the next step.

**B. Does the Claim Satisfy Any of the Following Inquiries?**

If a claim does not meet the machine-or-transformation test, but falls into one of the following “categories,” then it satisfies the § 101 threshold



and is likely patentable. If it does not fall into one of these categories, then it likely falls under one of the three nonpatentable exceptions—laws of nature, physical phenomena, and abstract ideas.

### 1. *Technological Arts*

The Federal Circuit rejected the technological arts test in *In re Bilski* due to the court's opinion that the terms "technological arts" and "technology" are too ambiguous and are frequently subject to change.<sup>121</sup> This demonstrates that patent determination should be flexible enough to accommodate the ever-changing state of technology. Inventors are constantly coming up with new applications for existing tools and ideas as well as new ways of accomplishing tasks. A patent examiner could easily evaluate a variety of claims by employing this simple test—does the claim fall within the technological arts meaning of the Constitution, meaning is the claim a practical application of knowledge or a manner of accomplishing a task especially using technical processes, methods, or knowledge? If it does, the claim satisfies § 101.

### 2. *Freeman-Walter-Abele*

Although dismissed in several cases,<sup>122</sup> the Freeman-Walter-Abele test was never intended to be the sole test for statutory subject matter when dealing with mathematical computations.<sup>123</sup> This test is nothing more than a way to distinguish an unpatentable algorithm and a patentable claim that happens to include an algorithm.<sup>124</sup> Even though this test has recognized uncertainties,<sup>125</sup> the test itself provides valuable guidance in determining the patentability of certain mathematical computations.<sup>126</sup>

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121. *In re Bilski*, 545 F.3d 943, 960 (Fed. Cir. 2008).

122. See *In re Bilski*, 545 F.3d at 959; *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1374 (Fed. Cir. 1998); *In re Alappat*, 33 F.3d 1526, 1543 n.21 (Fed. Cir. 1994).

123. *In re Schrader*, 22 F.3d 290, 297 (Fed. Cir. 1994). "This court has made clear that the *Freeman-Walter-Abele* test is not the only test for the existence of statutory subject matter when computation is involved. However, the test is useful and, when met, ends the inquiry, for it implements the principle set forth in *Diamond v. Diehr*, that "Congress intended statutory subject matter to 'include anything under the sun that is made by man.'" *Id.* (internal citations omitted).

124. *Arrhythmia Research Tech., Inc. v. Corazonix Corp.*, 958 F.2d 1053, 1059 (Fed. Cir. 1992). "The *Freeman-Walter-Abele* standard is met, for the steps of Simson's claimed method comprise an otherwise statutory process whose mathematical procedures are applied to physical process steps." *Id.*

125. *Id.* at 1063 (Radar, J., concurring).

126. *In re Schrader*, 22 F.3d 290, 297 (Fed. Cir. 1994). By definition, algorithm means "a procedure for solving a mathematical problem (as of finding the greatest common divisor) in

### 3. *Useful, Concrete and Tangible Result*

Section 101's use of the terms "new and useful" in outlining what is patentable<sup>127</sup> clearly indicates the applicability of the useful, concrete and tangible results test. This test differentiates between an unpatentable abstract idea and an idea that simply uses an abstract idea in such a way that it is reduced to a practical application.<sup>128</sup> This means an algorithm must be applied in a useful way to be patentable.<sup>129</sup> Is the law of nature, physical phenomena, or abstract idea capable of being put to use? Is it serviceable for an end or a purpose? Does the claim have a real, identifiable purpose? Patent examiners should be able to identify unpatentable laws of nature, physical phenomena, and abstract ideas by applying this test—does the claim produce a useful, concrete, tangible result, or is it simply a claim on the unpatentable?

Although future innovations and technology may test the outer limits of this proposed standard, it should be flexible enough to accommodate most inventions while allowing modifications to include any new categories the Board or the courts discover. With the recent passage of the Leahy-Smith America Invents Act,<sup>130</sup> the first major overhaul of the patent laws since the Patent Act of 1953, § 101 was one of the few sections not changed,<sup>131</sup> meaning it is even more important to give patent professionals an easy to understand and easy to follow standard for patentability.

## IV. CONCLUSION

Although misunderstood by the Court of Appeals for the Federal Circuit, the Supreme Court of the United States has consistently warned against the adoption of a rigid rule for determining patent eligibility under 35 U.S.C.

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a finite number of steps." *Algorithm Definition*, MERRIAM-WEBSTER DICTIONARY, <http://www.merriam-webster.com/dictionary/algorithm> (last visited Feb. 1, 2012).

127. 35 U.S.C. § 101 (2006).

128. *Parker v. Flook*, 437 U.S. 584, 589 (1978). "Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting disembodied concepts or truths that are not 'useful.'" *State St. Bank & Trust Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998).

129. *State St. Bank & Trust Co.*, 149 F.3d at 1373. "In *Alappat*, we held that data, transformed by a machine through a series of mathematical calculations to produce a smooth waveform display on a rasterizer monitor, constituted a practical application of an abstract idea (a mathematical algorithm, formula, or calculation), because it produced 'a useful, concrete and tangible result'—the smooth waveform." *Id.*

130. Pub. L. No. 112-29, 125 Stat. 284 (2011).

131. For a one-page overview of the changes, see *American Invents Act of 2011*, U. S. HOUSE OF REPRESENTATIVES COMM. ON THE JUDICIARY, available at <http://judiciary.house.gov/issues/Patent%20Reform%20PDFS/062011%20HR%201249%20%20pager.pdf>.

§ 101. While the *Bilski* ruling seemed to turn the patent world upside down, it actually corrected a mistake made by the lower court and, in doing so, held close to the principle that § 101 should be construed broadly.

This broad interpretation allows new technologies and innovations to be patent eligible even though they were not considered when the Patent Act of 1953 was written. Because § 101 is simply a threshold inquiry and claims are also required to meet §§ 102, 103, and 112 before a patent is issued, there is no harm in allowing “anything under the sun that is made by man” to pass § 101 scrutiny.

By ruling that the machine-or-transformation test is only a clue to patentability and not the sole test, the Supreme Court preserved billions of dollars of patented property. Simultaneously, the Court facilitated uncertainty regarding how to draft claims. It is not necessary to “throw the baby out with the bathwater” and completely ignore the previous tests employed in determining § 101 subject-matter eligibility. These tests—the Freeman-Walter-Abele, the technological arts, and useful, concrete and tangible result—still provide valuable insight into patent eligibility and should not be abandoned. By joining all of these inquiries with the machine-or-transformation test, the USPTO can create a meaningful standard flexible enough to adapt to new technologies that is also easily understood and applied.

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\* J.D. expected May 2013, University of Arkansas at Little Rock, William H. Bowen School of Law; M.S. in Operations Management, University of Arkansas, 2005; B.S. in Information Science, University of Arkansas at Little Rock, 2003. Many thanks are owed to those who provided their guidance, support, and patience with me throughout the writing and editing process: J. Charles Dougherty of Wright, Lindsey, & Jennings, LLP for his guidance in this area of law; Katie Watson for her incredible patience in answering my incessant questions; and to the Editorial Board and members of the Law Review for their hard work and dedication to each publication. I owe a great deal of gratitude for my daughter, my parents, in-laws, and countless friends for their never ending love and support. Most importantly, thank you to my husband, Dwayne, for his unwavering encouragement, love, support, and sacrifice. He has always been my number one fan, and I can always count on him to be waiting for me at whatever finish line I’m striving for. Without him, none of this would be possible. Besides...nothing says love quite like a mixed tape.